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THE BLACK-VENTED SHEARWATER (*PUFFINUS*  
*OPISTHOMELAS*).

BY A. W. ANTHONY.

MR. LEVERETT M. LOOMIS has recently published in the Proceedings of the California Academy of Sciences (Ser. 2, Vols. V, VI), a series of notes on the Water Birds of Southern California treating largely on the migration of certain species.

It is not my intention to criticise the above papers nor to in any way throw discredit upon the published observations of the writer, but, as the subject is one to which I have paid especial attention for a number of years, to place on record a few of my notes on one of the species observed by Mr. Loomis, as they are in some respects at variance with the conclusions arrived at by that writer.

In his 'California Water Birds' (No. II, p. 2), Mr. Loomis says: "Winter migration in birds nesting in the Northern Hemisphere is a well-known fact, there being continual movement southward and northward as the zone of snow and ice advances and retreats, but migration southward in the Northern Hemisphere in winter to breeding grounds appears to have escaped the observations of ornithologists. Such a migration exists in the Black-vented Shearwaters." And again (l. c., p. 7): "The Black-vented Shearwaters at Monterey were undoubtedly migrating to a breeding habitat farther South. While their destination may have been north of the equator it seems highly probable that they did not stop short of the Southern Hemisphere."

That the Black-vented Shearwater is a resident on the coast of California, nesting on several of the islands of the peninsula and coast of Southern California at least, I have known for several years. Just how far north their breeding habitat extends I am unable to say but have found the species not uncommon on several occasions off the Columbia River during the summer months and in November and January.

As very little has been published regarding this Shearwater, and as almost nothing is known of its nesting habits, I will take

this opportunity of giving some of my notes in detail, while establishing its claim to a position among our breeding birds.

On May 15, 1892, in company with Messrs. Charles H. Townsend and Clark P. Streater, I reached Guadalupe Island from San Diego and anchored under the high cliffs of lava at the North Head, about the middle of the afternoon.

Guadalupe lies about 220 miles south of San Diego, and about 65 miles from the nearest mainland, Punta Baja, on the Peninsula. The island is entirely of volcanic matter, huge cliffs of lava rising often 3000 feet from the sea. These are honey-combed by thousands of holes and miniature caves, offering unexcelled nesting sites for Cassin's Auklet, Xantus's Murrelet and other burrowing species, including the Black-vented Shearwater. Shortly after dark I was called on deck to listen to and identify some bird notes that came from the crags almost over our little schooner. The outcry soon increased to a moderate uproar, and was immediately recognized as the breeding notes of *Puffinus opisthomelas*, which I had several times heard in January and February while the birds were mating off the coast of San Diego County.

It would be impossible to describe accurately these notes. They were a series of gasping wheezy cries, resembling somewhat the escape of steam through a partly clogged pipe, uttered in a slightly varied key and repeated from four or five, to ten times. During calm weather in January, February, and March flocks of a dozen to several hundred of these Shearwaters often collect on the water well off shore and at such times I have heard the same notes from two or more birds as they chased each other, half running, half flying over the water. From the notes that came from the cliffs I thought that the birds were chasing one another, and a little later many of them came down to the water and were occasionally seen as they flashed by within the circle cast by our anchor light. After an hour or so the outcry somewhat subsided and I think most of the birds went off shore to feed, returning before daylight, for during nearly two weeks spent in cruising about the island only one flock of Shearwaters was seen in the daytime.

The cliffs about the North Head are all inaccessible, rising directly from the water, from a few hundred, to nearly or quite

three thousand feet, so that nothing could be learned of their nesting at that point. Three days later, however, we dropped anchor in Wheeler's Bay, at the southern end of the island, where the land is somewhat lower, and here a colony was found near the water. The burrows were in every instance either under a huge block of lava or in a crevice, where they were as much out of our reach as they were in the cliffs. A few of the burrows might have been opened possibly had we been provided with crowbars and suitable tools for wedging apart the blocks of lava, but after several ineffectual attempts with the tools nature provided we gave up and set a few steel traps at the mouths of some of the burrows in order to establish beyond dispute the identity of the species.

The next morning one or two Black-vented Shearwaters were taken from the traps and one of them, when hauled from the burrow, gave vent to his feelings in the gasping cry which we had heard every night since our arrival at the island. Two females were found by Mr. Streater in a crevice between two blocks of lava and secured, but no eggs or sign of nest was to be found. From this I thought that perhaps they were through with their nesting but had not yet abandoned the burrows during the day. The specimens prepared by me had evidently bred, and doubtless had at that time well grown young. Burrows were several times found two or three miles from the beach and as high as 4,000 feet altitude, and the mutilated bodies of freshly killed birds were often found where cats had left them. These felines, the descendants of domestic animals, introduced by the Mexicans, fairly infest the island and have made very serious inroads on the feathered inhabitants of Guadalupe, threatening some species with ultimate extermination.

A night was spent in a cypress grove three miles from the water and over 4,000 feet in altitude. Several times during the night I heard Shearwaters chasing each other through the grove and it is not impossible that a few were nesting there.

Major Chas. E. Bendire writes me that there are four eggs of this species in the National Museum collection, collected in 1873 on Santa Barbara Island by Capt. C. M. Scammon. I have never explored the Northern Islands of the Santa Barbara group, but I

am satisfied that Shearwaters do not nest on either San Clemente or Santa Catalina Islands. From information obtained from a reliable source I am inclined to think they are not uncommon on two or more of the smaller outlying islands.

During February and March of the current year ninety-eight per cent. of the Black-vented Shearwaters observed off San Diego were flying northward and the reproductive organs of those taken late in February indicated that the nesting season was very near at hand. They would have bred within two or three weeks I think; since then none have been shot, so I am unable to carry the data further.

The presence of this species along the coast of Southern and Lower California seems to be governed very largely by the food supply. They are common at any time, less so during the breeding season, when many are in the burrows during the day,—and vastly more abundant in late July, August, and September when they follow the large schools of herring and other small fish that come in shore at that season.

They are often seen in flocks of several thousands where fish are plenty. On one occasion I met with a flock on the coast of Lower California that I estimated contained not less than 50,000 Shearwaters. Many were so gorged with herring that they could not rise from the water, but flapped along the surface in advance of the steamer until nearly overtaken when they would dive. They would usually come up near enough to the vessel to be, if anything, more frightened than before, but could not take wing until they had disgorged a quantity of half digested fish, after which they flew off with apparent ease. It is only during very calm weather that this species is seen resting on the water. At such times they collect in very compact flocks, covering the water till there is but little room left within the circle that they almost invariably form. The first gentle breeze will start them on their journey again, and I have learned to have confidence in a breeze that starts them flying, for as far as my observations go they only rise if the wind is to be continuous, and will pay no attention to a gentle puff that will die out in a few minutes.

None of our Pacific coast seabirds adhere so closely to

established fly lines<sup>1</sup> as do the three species of *Puffinus*; even when flying fifty miles or more from land the first flock that passes will, with almost absolute certainty, mark the line which the next will follow, even though they be an hour behind. And I have long since discovered that in order to secure specimens of these shy species the boat must be placed in their fly lines. A flock will, on encountering a skiff, directly in their path, either divide and pass on either side or all swerve slightly to one side, immediately resuming their line of travel in either case. At times, however, they are easily turned from their course.

On January 23, I was drifting in a skiff off Point Loma, watching the Black-vented Shearwaters which were flying south along the western edge of an extensive bed of kelp. A garbage scow had sailed out through the kelp an hour before, leaving a broad oily 'slick' a hundred yards in width, extending two or three miles westward, at right angles to the course taken by the Shearwaters, which were passing in small flocks of four or five to a dozen every ten or fifteen minutes. Each flock turned sharply about when at a distance of a hundred yards from the oily water, and keeping at about that distance and to the windward, hurried on toward the west. *Not one bird* did I see cross contaminated water. I could detect no odor from the oil nor could the birds, had any existed, for they were flying down the wind.

I have never seen Black-vented Shearwaters pay any attention to bait or refuse thrown from the ship's galley, though Dark-bodied, Pink-footed, and Slender-billed Shearwaters will light to pick up floating garbage.

Though all of our Shearwaters prefer to keep rather well off shore, they will at times follow schools of small fish into shoal water. I once saw a flock of one or two hundred Black-vented Shearwaters feeding in the surf at Cape Colnett. Hovering over the advancing breaker they followed it to the beach, returning to meet the next, plunging repeatedly into its foamy crest for some species of small fish. They evidently did not feel at home so near land, for after a few minutes fishing they hurried out to sea again.

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<sup>1</sup> In this connection see Mackay on 'Fly Lines,' Auk, Vol. X, p. 245.

A complete molt of all the feathers occurs in July and August in this species (*P. opisthomelas*),— and a more or less complete molt of the feathers of the head and body takes place in January and February. *P. griseus* and *P. creatopus* also, I think, undergo a complete molt in July and August, but whether they share with *opisthomelas* a partial molt in early spring, I am unable to say from lack of material taken in proper season.

At times when I have found a pronounced flight of Shearwaters near shore I have usually if not always found a flight in the opposite direction farther at sea. This habit of flying in circles or advancing in a series of loops, is very noticeable when the birds are quartering the sea for small fish. Their circles are then often small enough to enable one to see the entire circuit. I recently made mention of this habit in a letter to Mr. Chase Littlejohn and his reply, which lies before me, will bear quoting from. He says: "During the summer there are untold thousands of them in Alaska and they are not rare in winter. Your remarks about the direction the Shearwaters flew interested me very much, and bring to mind facts that I had not thought of for some time. I think had it been possible for you to have followed a flight for a few hours you would have found yourself back where you started, for my belief is that *flocks* almost always, if not invariably, fly in circles, moving for hours, and even days in the same vicinity; and then again, travelling in a given direction, but still in circles. I have many times been at or near the center of a ring when it was just possible to see the birds in any direction, and from that down to circles only a few hundred yards in diameter. When we know that they fly in circles as far as the eye can see, is it not reasonable to think that they might extend it for a much greater distance and move south in-shore while, as you say, they were going north off-shore."

Mr. Littlejohn's notes on the Alaskan birds refer to the Slender-billed Shearwater, but are pertinent as I have found the flight very similar in all of our species.